

Comprehensive Everglades Restoration Plan - CERP





My focus today...

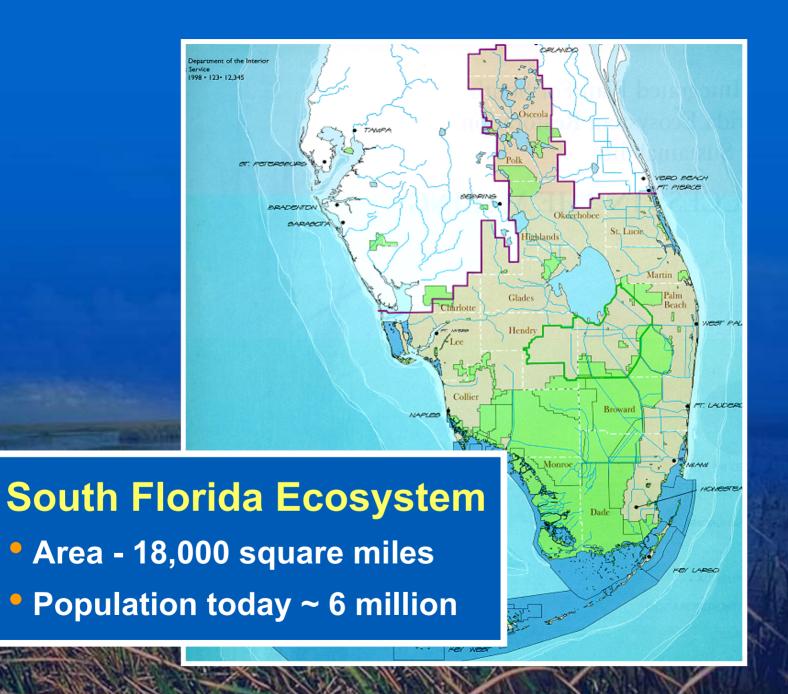
- CERP Background and Overview
- Legislation (WRDA 2000)
- Programmatic Regulations
- Science and Adaptive Management
- Pilot Projects
- Initial Projects
- Ongoing Projects
- Communications and Outreach

Restoring America's Everglades: Step 1



CERP Background and Overview

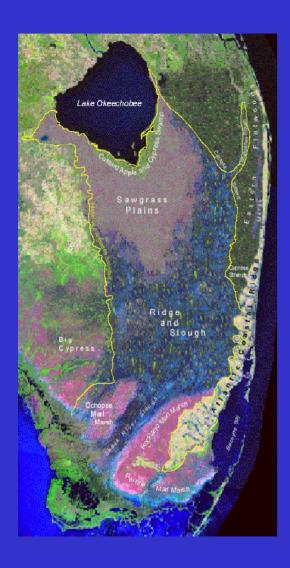
Comprehensive Everglades Restoration Plan



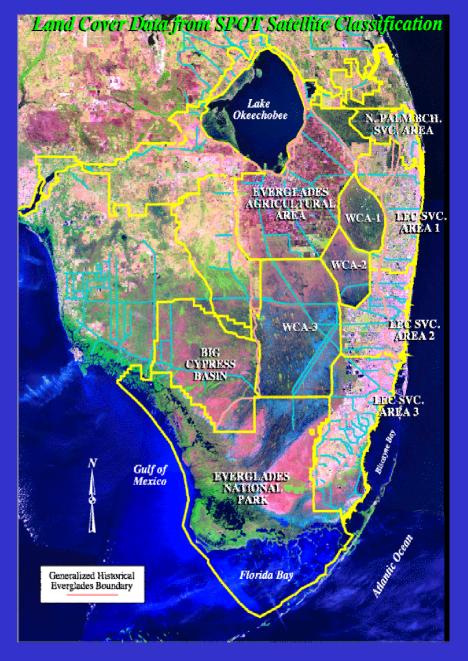
The "Original" Everglades Ecosystem "River of Grass"



- Water connected the system, from top to bottom
- 9 million acres of wetlands providing a variety of habitat
- Diverse mosaic of landscapes and seascapes



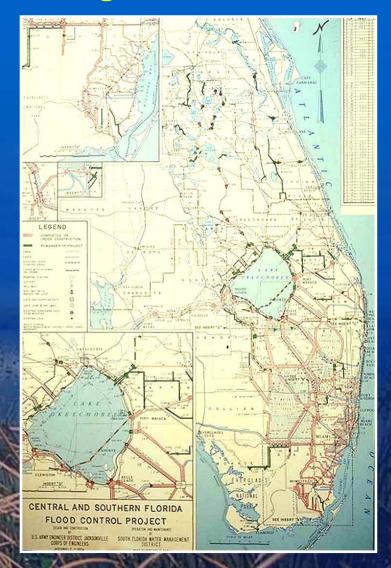
Estimated Pre-drainage System Landscape (circa 1850)

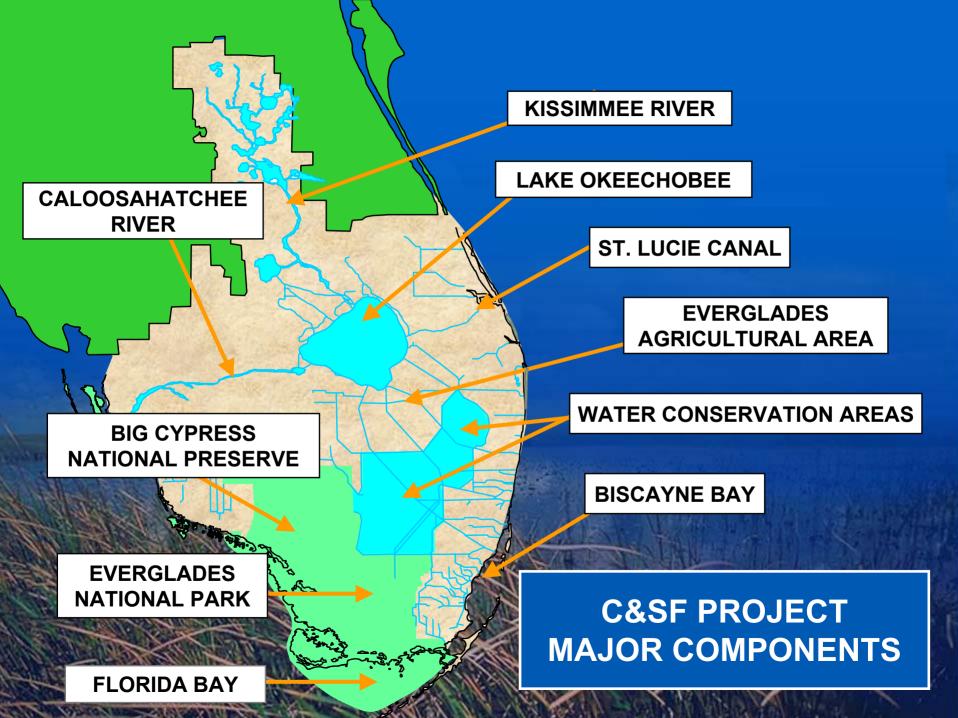


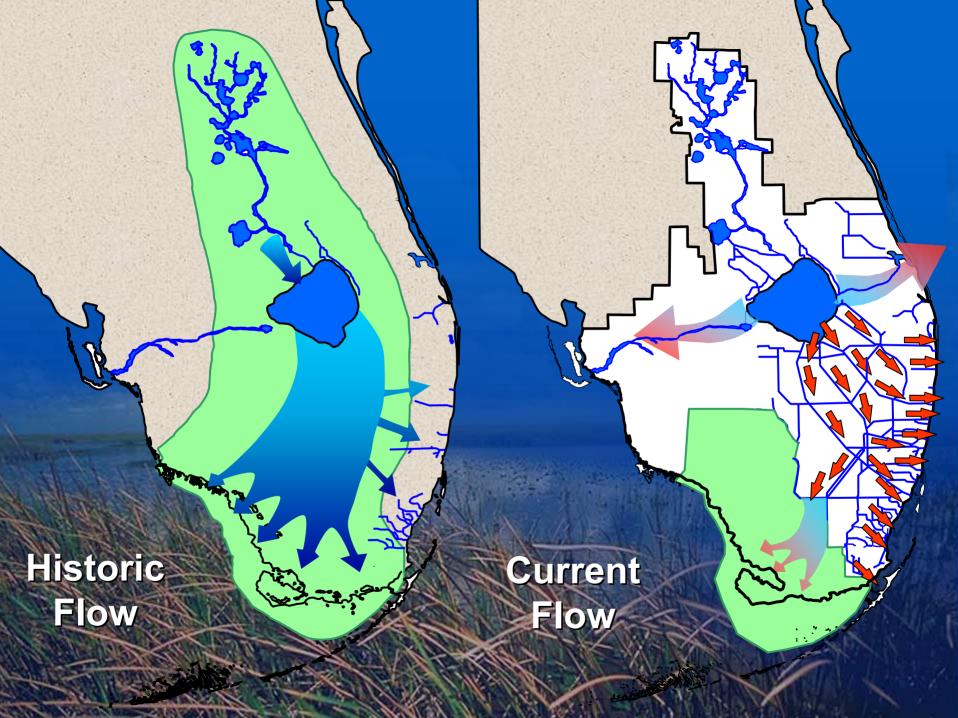
Current System (1995) Landscape

The C&SF Project

- Project Purposes: Flood control, water conservation and control, regional water supply, prevention of salt water intrusion, fish and wildlife conservation, and water supply to Everglades National Park
- Project includes: 10 locks, 1,000 miles of canals, 720 miles of levees, over 150 water control structures, and 16 pump stations







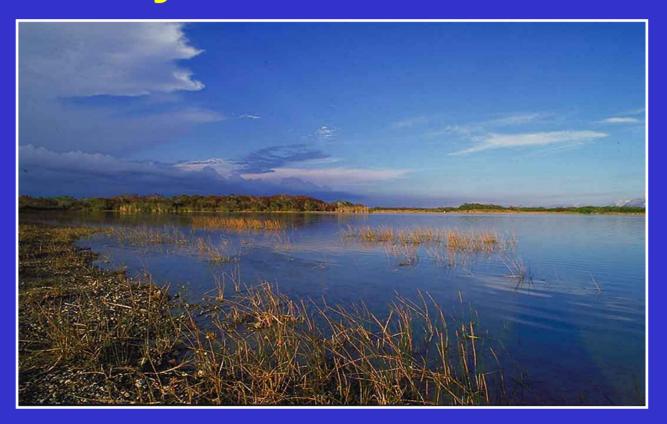
Indicators of Ecosystem Problems:

- ✓ 90 95% reduction in wading bird population
- ✓ 69 plant and animal species are threatened or endangered
- ✓ 1.7 billion gallons of water per day (on average) are lost through discharge to the ocean
- 1 million acres of the ecosystem under health advisories for mercury contamination
- Over 1.5 million acres infested with invasive, exotic plants

Indicators of Ecosystem Problems:

- Declining population levels of important fish species in the St. Lucie and Caloosahatchee estuaries and Biscayne and Florida Bays
- ✓ Defoliation of sea grasses, fish kills and deformed fish within the St. Lucie estuary
- Continued reduction in number of birds initiating breeding
- Repetitive water shortages and salt water intrusion

Key Tenet of South Florida Ecosystem Restoration:



Hydrologic restoration is a necessary starting point for ecological restoration

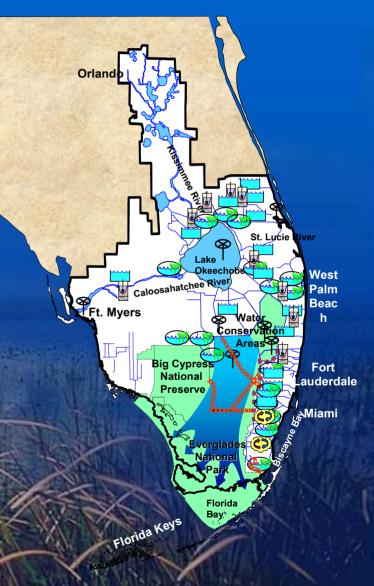
CERP is... Getting the Water Right

Quantity Quality **Distribution Timing**

Comprehensive Everglades Restoration Plan

68 Components

- 6 pilot projects
- 15 surface storage areas (~170,000 acres)
- 3 in-ground reservoirs (~11,000 acres)
- 330 aquifer storage and recovery wells
- 19 stormwater treatment areas (~36,000 acres)
- 2 wastewater reuse plants
- Removal of over 240 miles of canals, levees and structures
- Operational changes



CERP Components



Aquifer Storage & Recovery



Surface Water Storage Reservoir



Stormwater Treatment Areas (STAs)



Reuse Wastewater



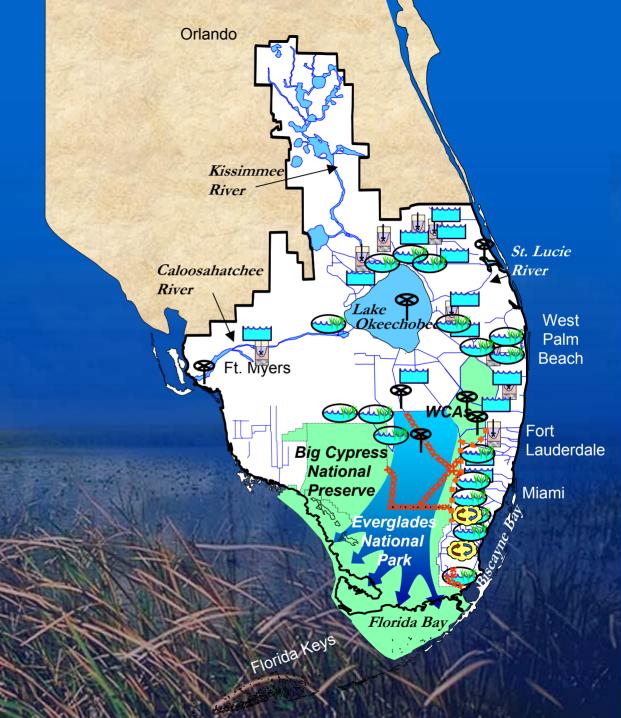
Seepage Management



Removing Barriers to Sheetflow

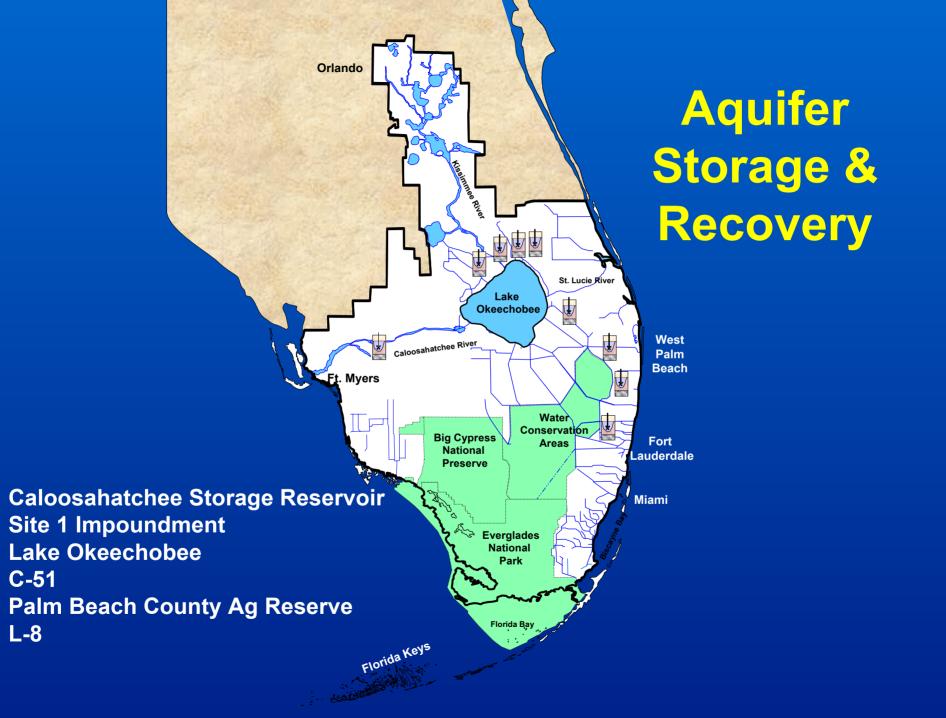


Operational Changes

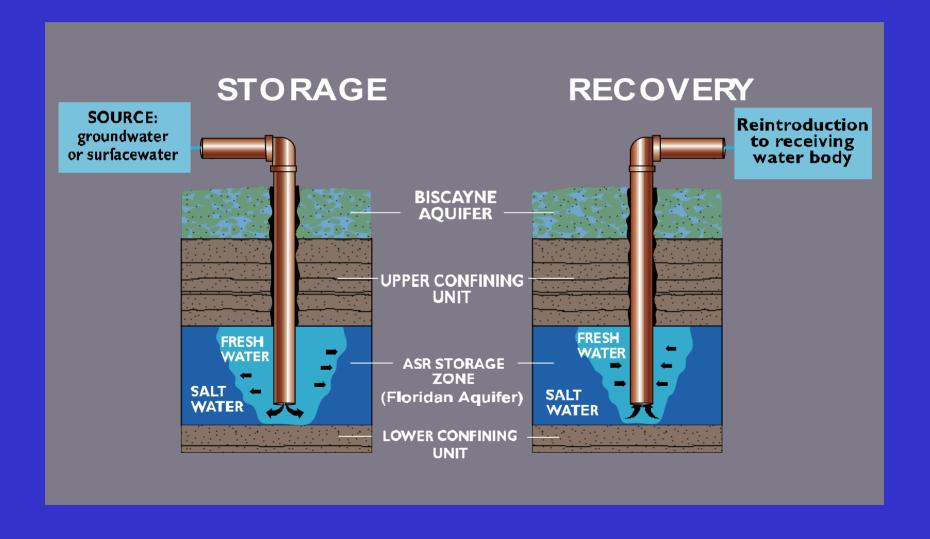




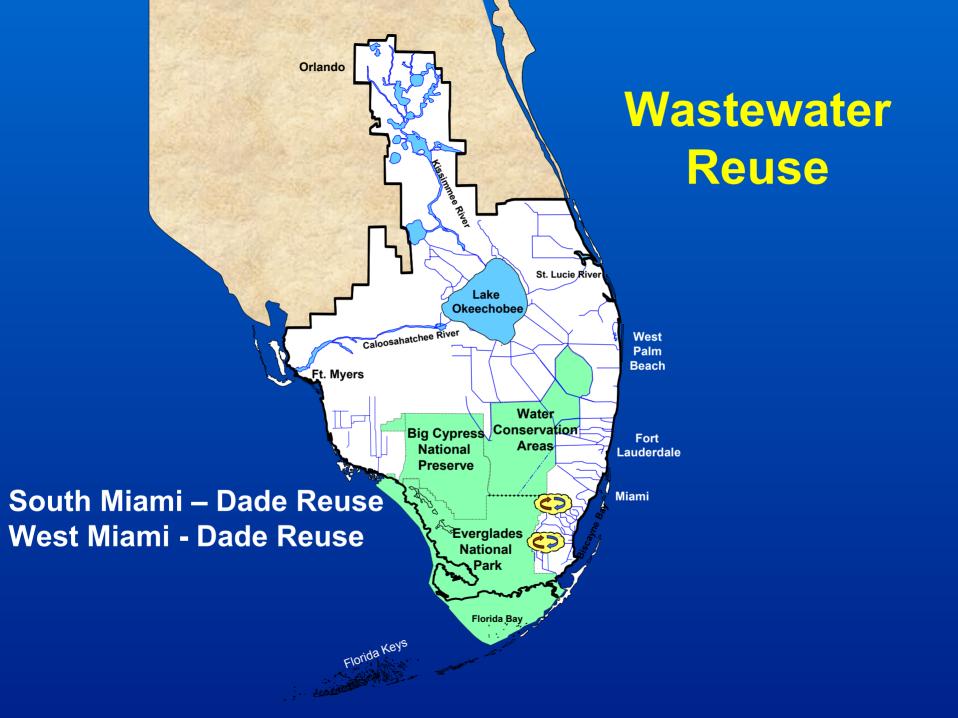


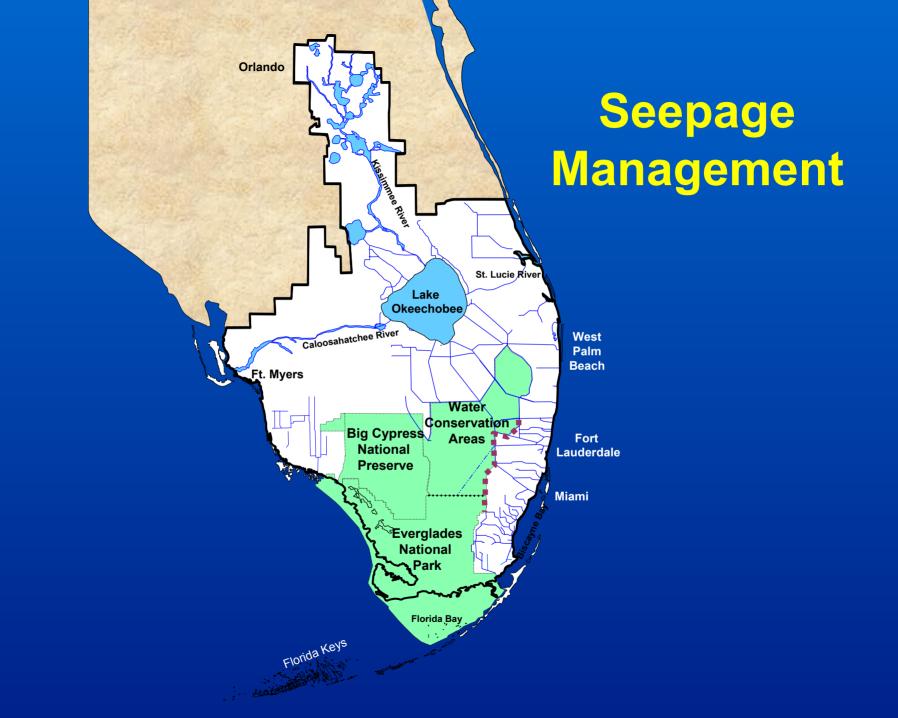


Aquifer Storage and Recovery

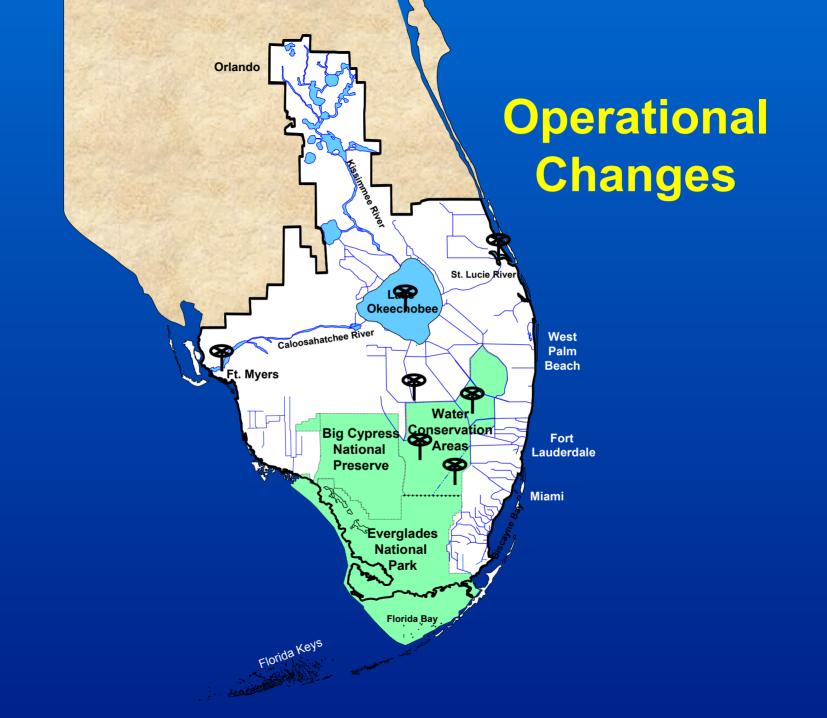








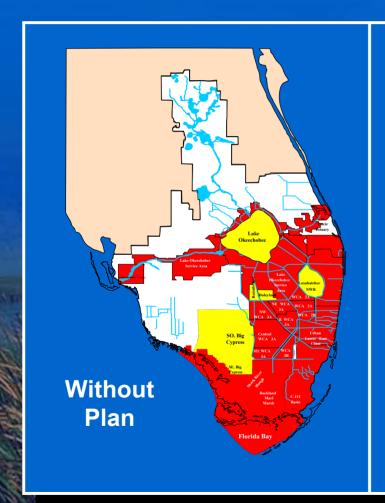


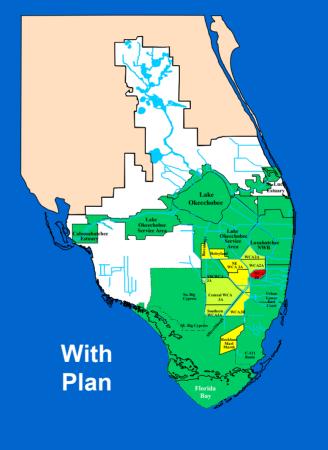


How Much?....Who Pays?



Future Ecosystem Conditions





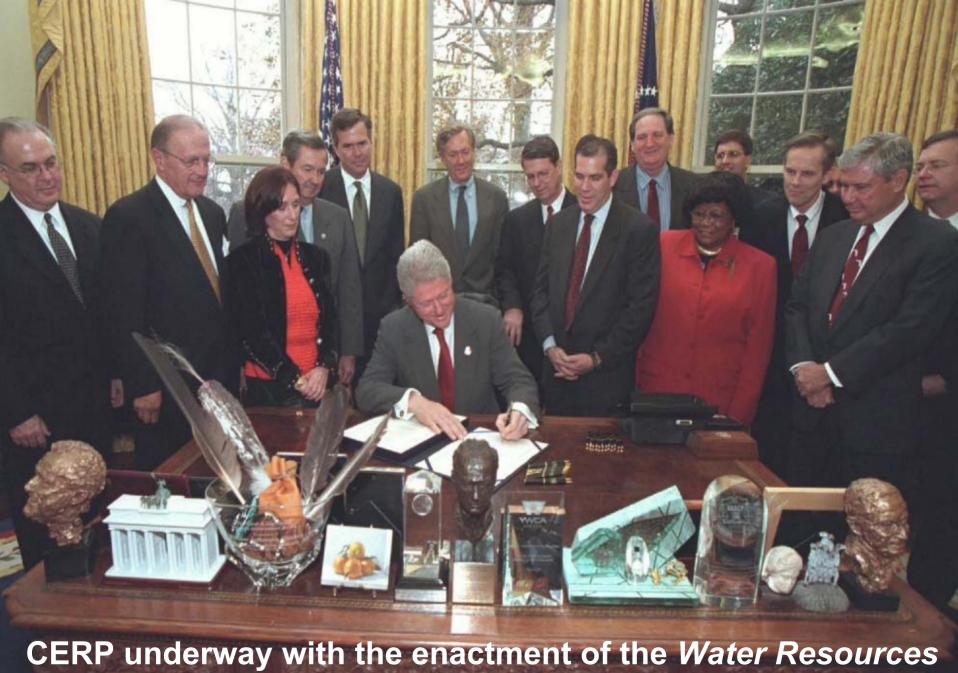
- = Successful
- = Marginal
- = Recovery Unlikely

Restoring America's Everglades: Step 2



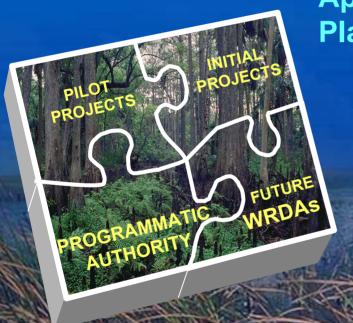
Legislation WRDA 2000

Comprehensive Everglades Restoration Plan



CERP underway with the enactment of the *Water Resources*Development Act (WRDA) of 2000

Water Resources Development Act of 2000



Signed into law on 11 December 2000 Approved the Conceptual Comprehensive Plan Authorized:

- 10 Initial Components \$1 Billion
- 6 Pilot Projects \$97 million
- Programmatic Authority \$206 Million
- Adaptive Assessment & Monitoring -\$100 Million
- 50-50 Cost Sharing between Federal Government and non Federal Partner

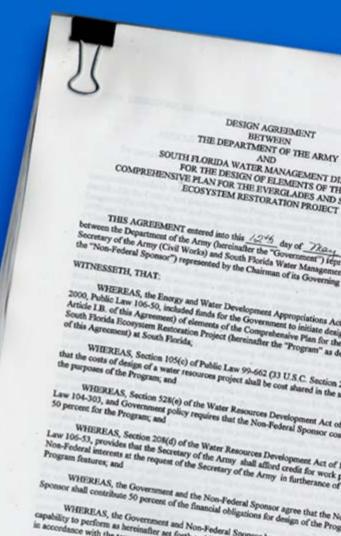
A New Partnership



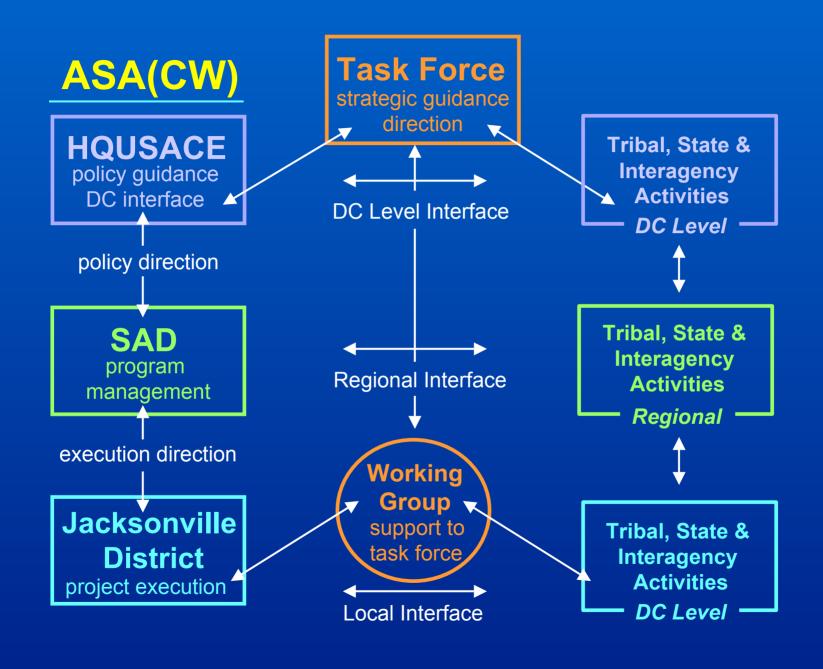
- The CERP project is being developed in Partnership with several non Federal sponsors, the primary ones being the SFWMD and the State of Florida
- Program is cost shared 50-50
- Sponsor provides all lands, easements, and rights of way
- Sponsor may provide their share of costs through in kind work

CERP SFWMD Design Agreement

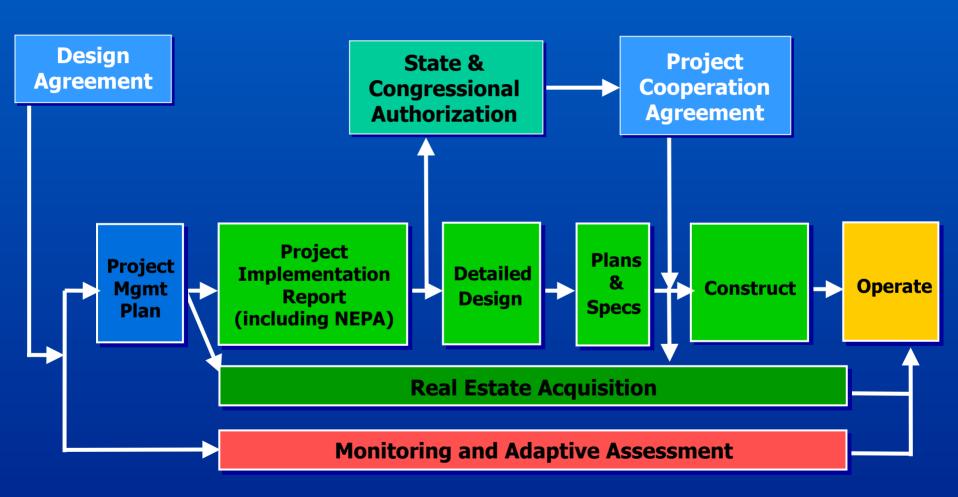
- \$712 million in design effort
- 56 components, 6 pilot projects, and programmatic activities
- 50/50 cost sharing for all design effort (including thru construction)
- **Establishes Design Coordination** Team (DCT)
- **Requires a Master Program Management Plan (MPMP)**
- **Provides partnership provisions** thru approval various authorities
- **Project Management Plans (PMP)** for projects & programmatic work



WHEREAS, the Government and Non-Federal Sponsor have the full authority capability to perform as heroinafter set forth and intend to cooperate in contributing to

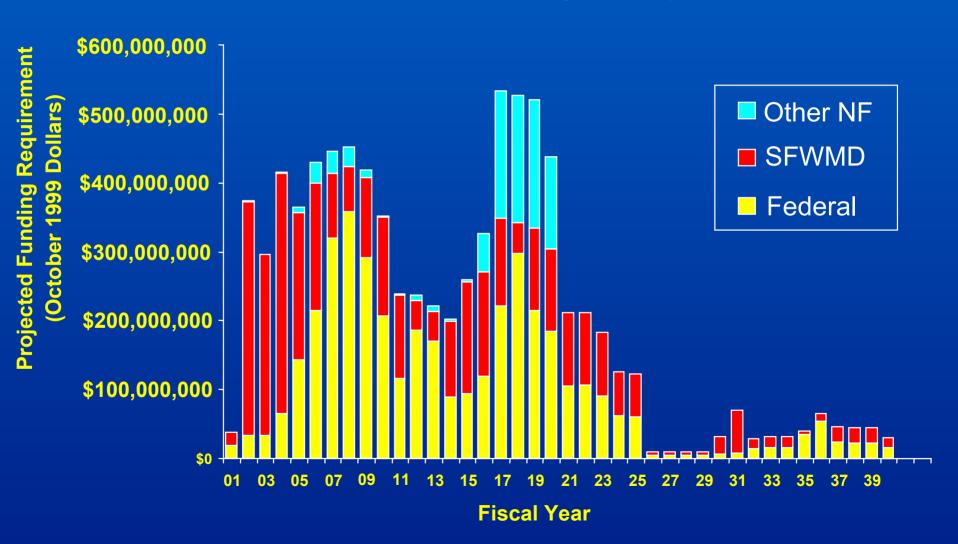


Standard Project Development Process



Overall CERP Schedule and Funding

Projected Combined Funding Requirement Total of \$7.8 Billion Through Completion







Programmatic Regulations

Comprehensive Everglades Restoration Plan

Assurance of Project Benefits Provisions

- Agreement between President and Governor
- Programmatic Regulations within 2 years to ensure goals and purposes of Plan are achieved
- Project Specific Assurances
 - Project Implementation Reports
 - Project Cooperation Agreements
 - Operating Manuals
- Savings Clause
 - Existing water users
 - Maintenance of flood protection
 - No effect on Tribal compact

"New" Water Distribution

80% - environmental restoration, reviving the ecosystem from the Kissimmee River, through Lake Okeechobee, through Everglades National Park, to Florida Bay and the coral reefs.



20% - enhanced water supplies for cities and farmers

America's Everglades are in Serious Peril

Responsibilities for Development of Regulations

Concurrence

Governor (DEP/SFWMD) & DOI

Consultation

Federal, Tribes, State, Counties

Promulgation

Assistant Secretary (Army)

Corps of Engineers

Stakeholders

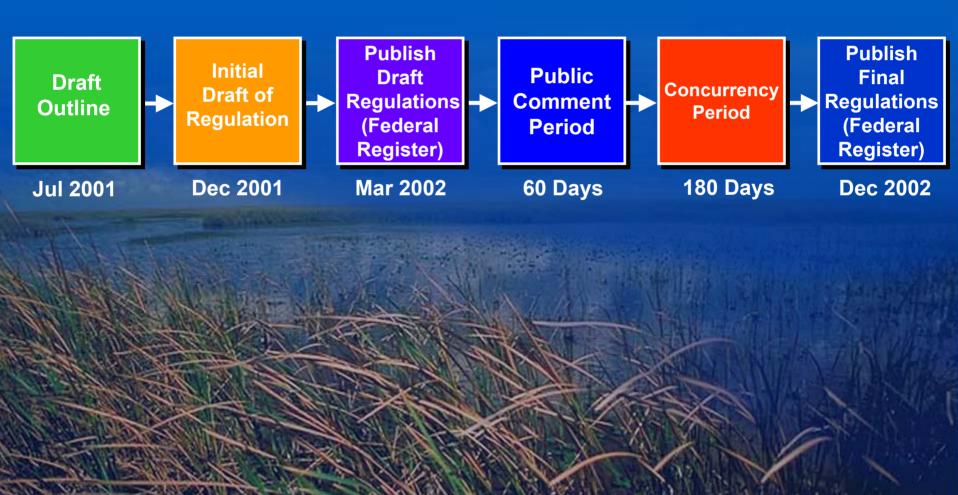
Public

Content of Regulations

Establish a Process

- For development of project implementation reports, project cooperation agreements, and operating manuals that ensure that goals and objectives of the Plan are achieved
- To ensure that new information from changed or unforeseen circumstances, new scientific or technical information or information developed through adaptive management, or future authorized changes to the Plan are integrated into the implementation of the Plan
- To ensure the protection of the natural system consistent with the goals and purposes of the Plan, including the establishment of interim goals to provide a means to evaluate success of the Plan

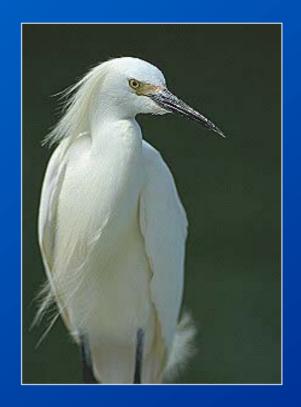
Programmatic Regulations Development Process



Initial Issues to be Resolved

- Amount of "substance" in regulations
- Interim goals
- Timing of concurrence requirements and revisions to draft regulation
- Coupling implementation of state water law and CERP
- Reservations versus actual availability of water





Science and Adaptive Management

Comprehensive Everglades Restoration Plan

"...restoring the Everglades is not rocket science or brain surgery.

It's much more complicated than that."

Don BoeschUniversity of Maryland

Comprehensive Plan Based on Sound Science

Peer Review used to provide independent evaluation of the science being applied to restoration efforts and to solicit advice on difficult issues:

- Understanding of the link between hydrologic changes and ecological responses
- ✓ Inter-disciplinary, inter-agency teams
- Alternative Evaluation Team of 80 specialists
- Primary models used in the development of the Plan.
- State of the Art model on animal species responses.

Major Science Issues

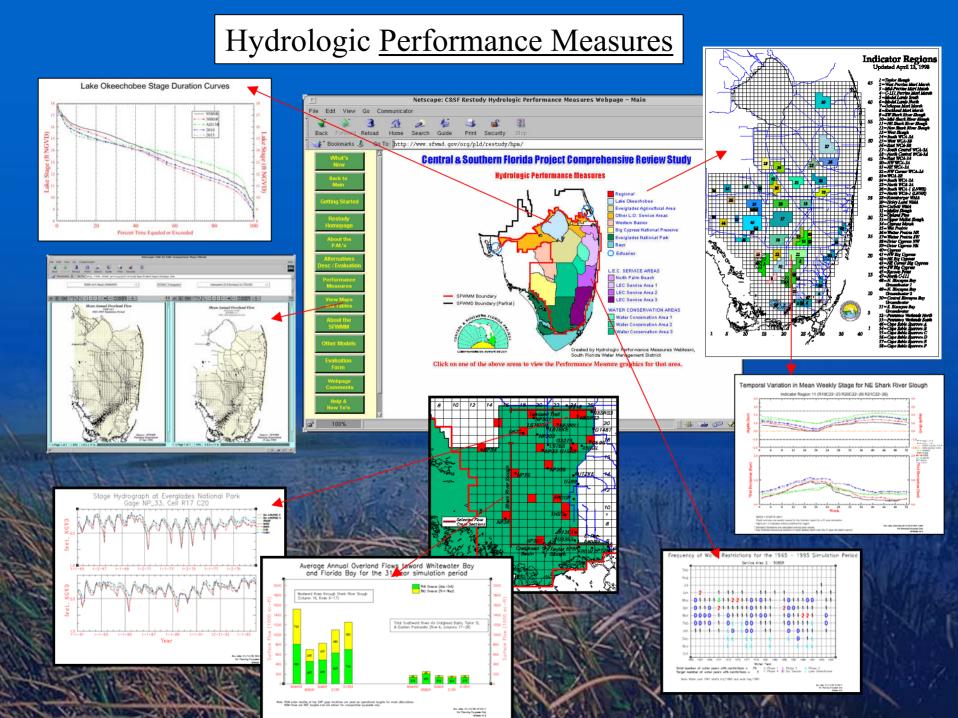
- Scientific and Engineering Simulation Models
 Hydrologic Models
 Ecological Models
- Linkage Between Hydrologic Change and **Ecosystem Response**
- Performance Measures
- **Technology**



Issue Resolution

- Peer Review of Models
- Developed Ecological Conceptual Models (Linking attributes with stressors)
- Inclusion of Pilot Projects to address
 Technological Uncertainties
- Independent Scientific Peer Review (CROGEE)





Adaptive Assessment

- \$10 million / year for 10 years \$100M total
- TASKS
 - Conceptual models & research priorities
 - Biological performance measures
 - Regional monitoring program
 - Annual adaptive assessment report
 - Coordinate scientific peer reviews

Restoration Coordination and Verification (RECOVER)



- Integral part of CERP implementation program
- Systematic process to address uncertainties associated with ecological responses
 - Adaptive Assessment
 - System wide Monitoring program
 - Development of new Models
 - Determine needed changes in the Plan
 - Water Quality Evaluation
 - Operational Planning

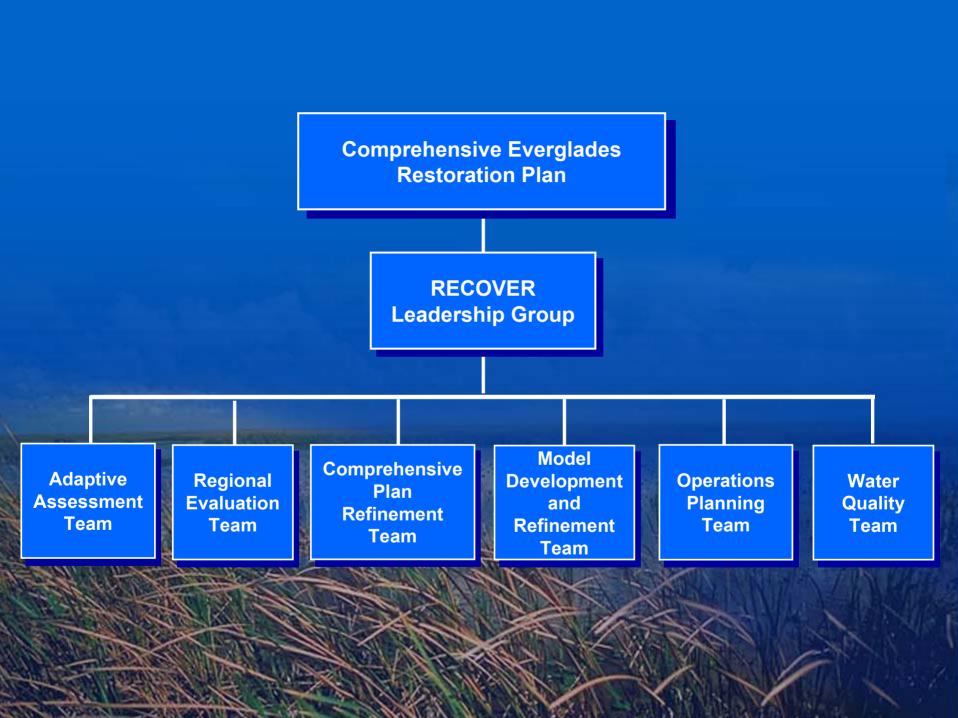
What is RECOVER?

- RECOVER Restoration Coordination and Verification
- Role Organize and apply scientific and technical information to support the objectives of CERP
- Composition Interdisciplinary, interagency body with Corps and SFWMD jointly responsible
- Scope Programmatic, system-wide, for duration of CERP

Why RECOVER?

OVERALL Purpose

- Insure that the best available science is applied to CERP
- Insure that Adaptive Management practices are followed during the implementation of CERP
- Promote interagency collaboration on scientific and technical issues and tasks in support of CERP
- Insure that system-wide perspectives and goals are maintained



Restoring America's Everglades: Step 3--Implementation



Pilot Projects

Comprehensive Everglades Restoration Plan



Pilot Projects

Lake Okeechobee ASR

Caloosahatchee River (C-43) Basin ASR

Site 1 Impoundment and ASR

Lake Belt In-Ground Reservoir Technology

L-31N Seepage Management

Wastewater Reuse Technology

TOTAL

\$19,000,000 (1)

\$ 6,000,000

\$ 9,000,000 (1)

\$23,000,000

\$10,000,000

\$30,000,000

\$97,000,000

(1) Authorized in WRDA 1999 at a total cost of

\$27,000,000

Lake Okeechobee ASR Pilot



PROJECT COSTS

PED \$ 3,000,000

Real Estate \$ 0

Construction \$ 16,000,000

Total \$ 19,000,000

COST SHARING: 50/50

SPONSOR: SFWMD

PURPOSE: Address ASR local area

technical uncertainties.

STATUS: Authorized WRDA99 with Hillsboro Site 1 ASR Pilot. Preparing

PMP.

Hillsboro Site1 ASR Pilot



PROJECT COSTS

PED \$ 900,000

Real Estate \$ 0

Construction \$ 7,100,000

Total \$ 8,000,000

Federal TBD

Non-Fed TBD

COST SHARING: 50/50

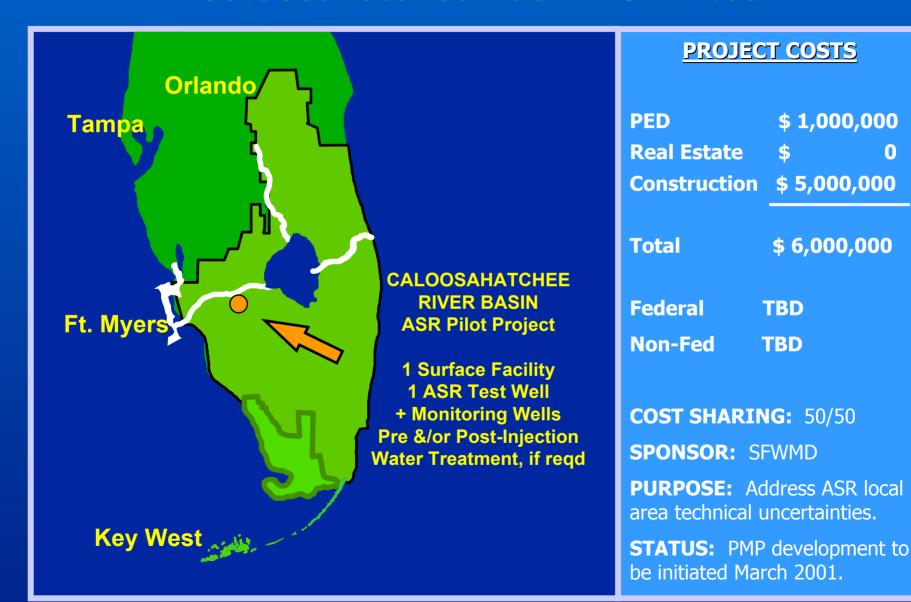
SPONSOR: SFWMD

PURPOSE: Address ASR local area technical uncertainties.

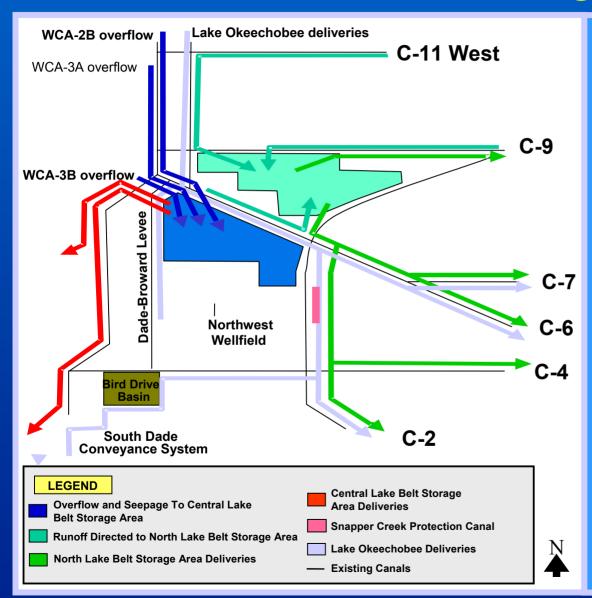
STATUS: Authorized WRDA99 with Lake Okee. ASR Pilot.

PMP development in progress.

Caloosahatchee Basin ASR Pilot



Lakebelt Technology Pilot



PROJECT COSTS

PED \$ 3,600,000

Real Estate \$ 0 Construction \$ 19,400,000

Total \$ 23,000,000

Federal TBD

Non-Fed TBD

COST SHARING: 50/50

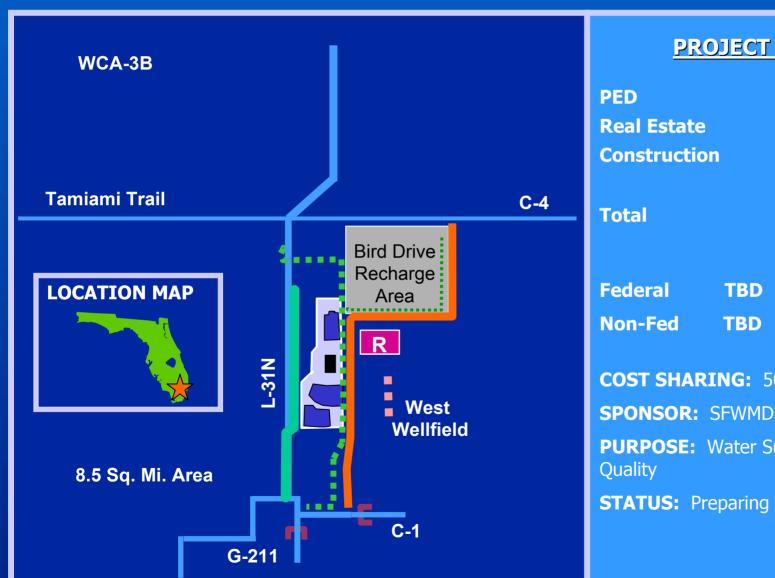
SPONSORS: SFWMD

PURPOSE: Environmental Restoration

Test technology

STATUS: Preparing PMP

L-31N Seepage Management Pilot



PROJECT COSTS

500,000

\$ 9,500,000

\$ 10,000,000

COST SHARING: 50/50

PURPOSE: Water Supply, Water

STATUS: Preparing PMP

Reuse Technology Pilot



PROJECT COSTS

PED \$ 5,600,000

Real Estate \$ 1,600,000

Construction \$ 22,800,000

Total \$ 30,000,000

Federal TBD

Non-Fed TBD

COST SHARING: 50/50

SPONSORS: SFWMD

PURPOSE: Environmental

Restoration, Water Quality, &

Technology Assessment

STATUS: Preparing PMP



Initial Projects

Comprehensive Everglades Restoration Plan



TOTAL

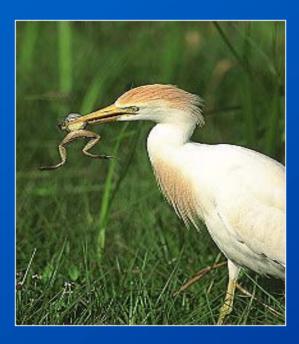
WRDA 2000 Initial Authorization

\$1,100,918,000

C-44 Basin Storage Reservoir	\$112,562,000
Ever. Agric. Area Storage Reservoirs - Phase I	\$233,408,000
Site 1 Impoundment	\$ 38,535,000
WCAs 3A / 3B Levee Seepage Management	\$100,335,000
C-11 Impoundment & Stormwater Treatment Area	\$124,837,000
C-9 Impoundment & Stormwater Treatment Area	\$ 89,146,000
Taylor Creek / Nubbin Slough Storage and Treatment Area	\$104,027,000
Tamiami Trail Modifications and Fill Miami Canal (WCA 3)	\$ 26,946,000
North New River Improvements	\$ 77,087,000
C-111N Spreader Canal	\$ 94,035,000
Adaptive Assessment and Program Monitoring	\$100,000,000



- Modeled after the Critical Project Authority
- \$206,000,000 Total Estimated Cost
- 50/50 Cost Share up to \$25,000,000 each project
- 21 Components qualify for this program
- Projects can be approved by Secretary of the Army



Ongoing Projects

Comprehensive Everglades Restoration Plan

Kissimmee River Restoration



AUTHORIZATION: WRDA 92

PURPOSE: Environmental

Restoration

FEATURES: Canal Backfilling, Levees, Control Structure Expansion, Canal Enlargement, and Structure Removal, Land Acquisition

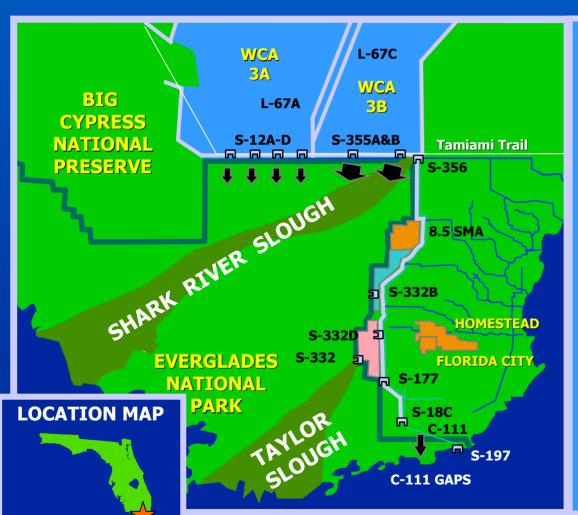
PROJECT COST: \$528.5M

COST SHARE: 50/50

LOCAL SPONSOR: South FloridaWater Management District

STATUS: Construction
Underway, 1st backfill contract
for 7 miles complete

Modified Water Deliveries to Everglades National Park (MWD)



PROJECT COSTS

PED/Monitoring \$ 51,491,000
Real Estate \$ 76,450,000
Construction \$ 70,277,000

Total \$ 198,218,000

FED \$ 198,218,000

COST SHARING: 100% US

Department of Interior

PURPOSE: Environmental Restoration, enhancement of Everglades National Park.

STATUS: Multiple phases underway in Planning, Design & Construction with partial construction complete.

West Palm Beach Canal (C-51) / STA 1E



PROJECT COSTS

PED \$ 22,482,000

Real Estate \$ 60,440,000

Construction \$192,578,000

Total \$275,500,000

Federal \$249,700,000

Non-Fed \$ 25,800,000

COST SHARING: 91/9

SPONSOR: SFWMD

PURPOSE: Flood Control, Water Quality, Water Supply

STATUS: Under Construction,

4 contracts underway

Critical Ecosystem Restoration Projects

Special Program authorized by Congress at total cost of \$150 million





- 1. C-4 East Coast Canals
- 2. Tamiami Trail Culverts
- 3. Keys Carrying Capacity
- 4. Western C-11
- 5. Seminole-Big Cypress
- 6. Southern CREW
- 7. Lake Okeechobee
- 8. Ten Mile Creek
- 9. Lake Trafford Restoration



Communications and Outreach

Comprehensive Everglades Restoration Plan

Public Information

- Public Information
 - Brochures and other printed material
 - Electronic material
 - Displays
 - News media
- Environmental Education
- Information for Elected
 Officials





Outreach to Minority Communities

- Involve Black, Hispanic, and other minority populations in Everglades restoration
- **Develop Outreach Strategy**
- Public Information and **Education**
- Mass Media
- **Community Involvement**

Plan Total Pou Restorasyon Everglades

disponib pou fè tout travay sa vo.



Li ap amélyoré condisyon 2.4 milyor

El Plan para restaurar

los Everglades de América

Ecosistema en Peligro:

Rescate de un

Pou nou ka prézèvé anvironman natirel Sid Florid-la, ak ogmanté dlo nan zòn nan é mété pwotéksvon kont inondasyon tou, Kò Enjényè Lamé Ameriken (U.S. Army Corps of Engineers) pral asosyé avek South Florida Water Management District

é li ba nou é zanimo-yo dlo pou nou bwè tou, yo rélé fénomèn sa-a ékosistem. Jodi-a, ékosistem ékstròdiné sa-a ap disparèt. Pandan dènyé ! an yo, santé ak grosè Everglades-la ap bésé san rété. Akoz drénaj ak dévlopman, Everglades nan jounin jodi-a ap soufri paské manké dlo prop

pou dévlopé you plan pou kimbé Everglades-la an plen fòm. Sé sa yo rélé Plan Total Réstorasyon Everglades-la. Gen you séri de amélyorasyon ékolojik ak nan sistèm idrolik la(ak tivo tou) ki pral pran plis ké 20 tan pou vo ranié. Sé vou plan ki pral kouté 7.8 bilyon dola é sé gouvenman fédéral ak éta Florid la ki pral patajé dépans sa-a égalégo

> ik la sé vou trézo nasvonal é nanowen tankou li. Pou nou sové li. fòl Plan Total pou Restorasyon Everglades-la pèmèt nou kapté bon dlo 1 lanmè-a. Sé dlo sa-a kap asiré nou you anvironman ki menen bon mi solid pou nou ak pou tout lôt iénérasyon vo.

koulé alez, é ki té bay dlo dous ki sòti dépi nan Lak Okeechobee pou

vé jis nan Bè Florid-la. Li koulé pou li awozé tout tè, jaden, pyé bwa

Total pou Réstorasyon Everglades pra-l édé nou

kalité ak kantité dlo pou bwè ak pou irigasyon bon anvironman pou nou ak tout zanimo an libèté yo

pou nou ak tout fanmi nou é lôt aprécié li é jwi li pou tout tan.



ou fè pou édé kounvè-a:

sèvé dlo la kay nou (na ékzann. lè ou-an benyen na fè tròn tan nan -a. ou byen pa gaspiyé dlo-a) iché konin infòmasyon sou Everglades-la

nbé-l an fòrm.

vé kozé-a nan kominoté-

rité manm South Florida Water Management District-la pou yo vin fi prézantasyon nan kominoté-nou ou byen nan oganizasyon nou. éfoné nou nan: 1-877-GLADES1 (1-877-452 3371). Ou byen voy



South Florida Water Manage 3301 Gun Club Road PO Roy 24680 West Palm Reach, Florida 33416-4680

South Florida Water Management Distric 172A West Flagler Street Miami, Florida 33130 305-377-7274

1-877-GLADES1 (Rele gratis)



Outreach to Socially and Economically Disadvantaged Individuals

- Critical Link to Socio-Economic and Environmental Justice Plan
- Develop Outreach Strategy
- Promote Employment and Business Opportunities
- Consider Project Impacts

Public, Stakeholder and Agency Involvement

- Public Meetings and Workshops
- Community Meetings
- Stakeholder Group Activities
- Commissions and Committees





A sound plan and unprecedented legislation—
We must now act to make restoring America's Everglades a reality.

We are no longer at a crossroad...
the next few years are critical to our success.

At the beginning of the 21st century, we have embarked upon a new path to save a critically imperiled ecosystem.

America's Everglades - the "River of Grass" - unlike any other at any time or in any place.

The future of the Everglades rests in our hands...it is a responsibility that is exciting, yet humbling...together, as partners, we will meet the challenge.

